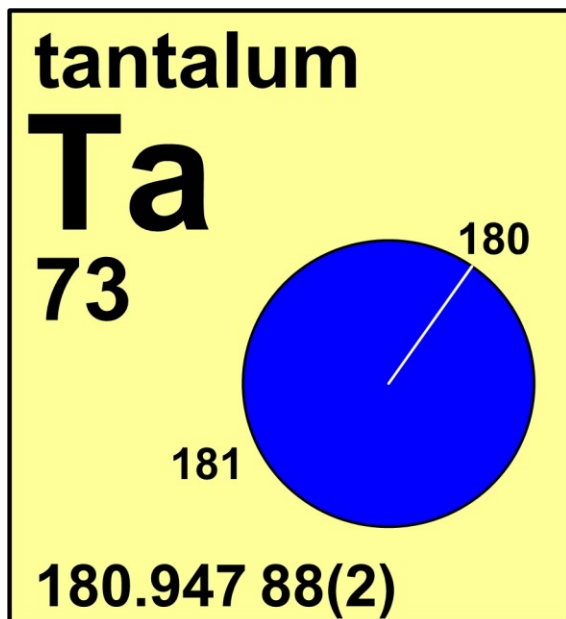


tantalum



| Stable isotope | Atomic mass* | Mole fraction |
|-------------------|--------------|---------------|
| ^{180}Ta | 179.947 4648 | 0.00012 |
| ^{181}Ta | 180.947 9958 | 0.99988 |

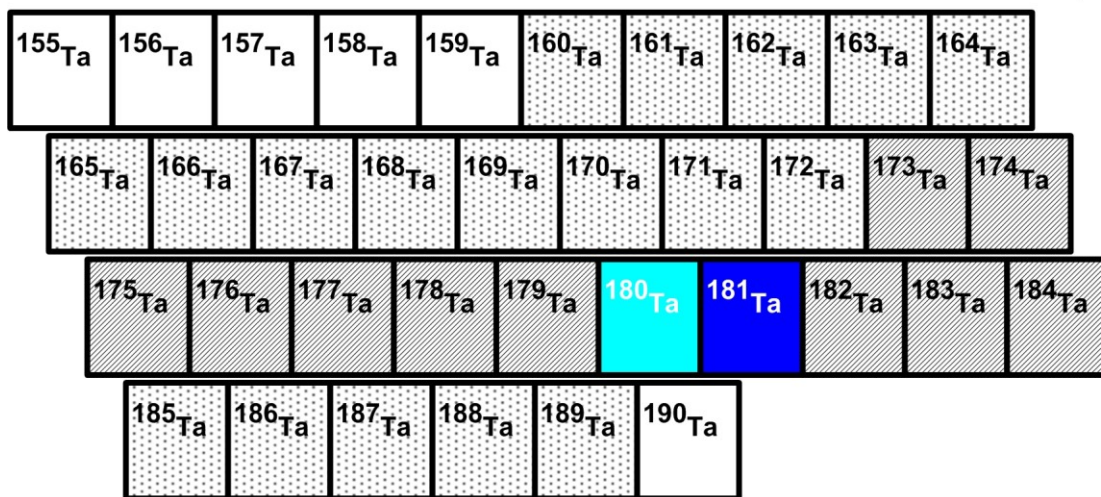
* Atomic mass given in unified atomic mass units, u.

Half-life of radioactive isotope

Less than 1 second

Between 1 second and 1 hour

Greater than 1 hour



Important applications of stable and/or radioactive isotopes

Isotopes in medicine

- ^{178}Ta is used in medical studies, such as Murine first-pass radionuclide angiography, to better understand cardiovascular diseases.
- Murine first-pass radionuclide angiography uses a pinhole lens fitted to a high-speed multiwire proportional camera (MPC) and $^{178}\text{W}/^{178}\text{Ta}$ generator for minimally invasive quantification of murine ventricular functions.
- ^{181}Ta is used to produce ^{178}W , which decays to ^{178}Ta .

- 4) Intravenous injections of ^{178}Ta are used in gated equilibrium blood pool imaging.
- 5) ^{183}Ta has the potential for use in radionuclide pharmaceuticals and as a tracer for ecotoxicity studies.
- 6) The multiwire gamma camera has a ^{178}Ta generator incorporated in its housing. This provides portable and laboratory ventricular function assessments for cardiovascular patients.



Figure 1: Multiwire Gamma Camera. (Photo Source: Ami Iskandrian, M.D., Proportional Technologies, Inc.).